

Part 1 General

1.1 REFERENCES

- .1 ASTM E119 – Standard Test Methods for Fire Tests of Building Construction and Materials
- .2 ASTM E814 – Standard Test Methods for Fire Tests of Through-Penetration Fire Stops
- .3 CAN/ULC S115 – Standard Method of Fire Tests of Firestop Systems
- .4 ULC (Underwriters Laboratories of Canada)

1.2 PERFORMANCE REQUIREMENTS

- .1 Firestopping Materials: ULC to achieve a fire rating as noted on Drawings.
- .2 Firestop all interruptions to fire rated assemblies, materials, and components.
- .3 Firestopping and smoke seal systems in accordance with CAN/ULC S115.

1.3 SUBMITTALS

- .1 Submit shop drawings and product data in accordance with Section 01 33 00. Shop drawings will identify locations of fire-rated assemblies via plans, sections, and details.
- .2 Provide detail sheets including ULC designations, and written installation instructions for each type of penetration, and each manufacturer. Approved data sheets to be kept on site and available upon request to Departmental Representative and representatives conducting inspections.
- .3 The Firestopping Manufacturer is to submit a letter to the General Contractor certifying they have observed and reviewed at least one typical installation of each type of penetration through fire-rated assemblies, in compliance with approved ULC design specifications. And that the installation of the Firestopping is performed by an applicator certified by the manufacturer. Forward one copy to the Departmental Representative, and include one copy in each maintenance manual specified in Section 01 78 00. **Certificate of Substantial Performance for the entire project will not be issued until the Departmental Representative has received the Manufacturer's Letter of Certification from the Contractor indicating all fire stopping applications do comply with the tested assemblies of the Manufacturer.**
- .4 Samples: Provide approved sample of assemblies, approved by manufacturer's representative.

1.4 DELIVERY, STORAGE, AND PROTECTION

- .1 Deliver firestopping products in original, unopened containers with labels intact and legible, identifying product and manufacturer.
- .2 Store and handle firestopping materials to manufacturer's instructions.

1.5 ENVIRONMENTAL REQUIREMENTS

- .1 Apply materials within the temperature range as recommended by manufacturer.
- .2 Maintain this minimum temperature before, during, and for 3 days after installation of materials.

1.6 SEQUENCING

- .1 Sequence work to permit firestopping materials to be installed after adjacent and surrounding work is complete.

Part 2 Products

2.1 MATERIALS

- .1 Fire stopping and smoke seal systems:
 - .1 Asbestos-free materials and systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of CAN/ULC S115 and not to exceed opening sizes for which they are intended in accordance with CAN/ULC S115.
 - .2 Firestop system rating: equal to or greater than systems through which they pass.
 - .3 Where possible, use products achieving equal "F" and "T" ratings as per ULC designations.
 - .4 L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at both ambient and elevated temperatures
 - .5 Mold Resistance: Provide penetration firestopping with mold and mildew resistance rating of 0 as determined by ASTM G21.
- .2 Service penetration assemblies: certified by ULC in accordance with CAN4-S115 and listed in ULC Guide No. 40 U19.
- .3 Service penetration firestop components: certified by ULC in accordance with CAN4-S115 and listed in ULC Guide No. 40 U19.13 and ULC Guide No. 40 U19.15 under the Label Service of ULC.
- .4 Fire-resistance rating of installed fire-stopping assembly not less than the fire-resistance rating of surrounding floor and wall assembly.
- .5 Firestopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.
- .6 Firestopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
- .7 For penetrations through a Fire Wall or horizontal Fire Separation provide a firestop system with a "FT" Rating as determined by ULC or cUL which is equal to the fire resistance rating of the construction being penetrated.
- .8 Provide a firestop system with an Assembly Rating as determined by UL 2079 which is equal to the time rating of construction joint assembly.

- .9 Use only firestop products that have been ULC or cUL tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each separate instance.
- .10 Pre-Installed firestop devices for use with non-combustible and combustible pipes (closed and open systems), conduit and/or cable bundles penetrating concrete floors and/or gypsum walls, the following products are acceptable:
 - .1 Cast-In Place Firestop Device
 - .2 Tub Box Kit for use with tub installations.
 - .3 Cast-In Place Firestop Device for use with non-combustible penetrants.
 - .4 Speed Sleeve for use with cable penetrations.
 - .5 Firestop Drop-In Device for use with non-combustible and combustible penetrants.
 - .6 Firestop Block.
- .11 Re-penetrable, round cable management devices for use with new or existing cable bundles penetrating gypsum or masonry walls, the following products are acceptable:
 - .1 Speed Sleeve with integrated smoke seal fabric membrane.
 - .2 Firestop Sleeve
 - .3 Retrofit Sleeve for use with existing cable bundles.
 - .4 Gang plate for use with multiple cable management devices.
 - .5 Gang plate Cap for use at blank openings in gang plate for future penetrations.
- .12 Sealants or caulking materials for use with non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT), the following products are acceptable:
 - .1 Intumescent Firestop Sealant
 - .2 Firestop Silicone Sealant Self Leveling
 - .3 Fire Foam
 - .4 Flexible Firestop Sealant
 - .5 Firestop Silicone Sealant Gun Grade
- .13 Sealants or caulking materials for use with sheet metal ducts, the following products are acceptable:
 - .1 Firestop Silicone Sealant Gun Grade
 - .2 Flexible Firestop Sealant
 - .3 Intumescent Firestop Sealant
 - .4 Firestop Silicone Sealant Self Leveling
 - .5 Firestop Joint Spray
- .14 Sealants, caulking or spray materials for use with fire-rated construction joints and other gaps, the following products are acceptable:
 - .1 Firestop Silicone Joint Spray
 - .2 Firestop Silicone Sealant Gun Grade
 - .3 Flexible Firestop Sealant
 - .4 Firestop Silicone Sealant Self Leveling

- .15 Pre-formed mineral wool designed to fit flutes of metal profile deck; as a backer for spray material:
 - .1 Speed Plugs
 - .2 Speed Strips
- .16 Foams, intumescent sealants, or caulking materials for use with flexible cable or cable bundles, the following products are acceptable:
 - .1 Intumescent Firestop Sealant
 - .2 Fire Foam
 - .3 Firestop Silicone Sealant Gun Grade
 - .4 Flexible Firestop Sealant
- .17 None curing, re-penetrable intumescent putty or foam materials for use with flexible cable or cable bundles, the following products are acceptable:
 - .1 Firestop Putty Stick
 - .2 Firestop Plug
- .18 Wall opening protective materials for use with cUL. / ULC listed metallic and specified non-metallic outlet boxes, the following products are acceptable:
 - .1 Firestop Putty Pad
 - .2 Firestop Box Insert
- .19 Firestop collar or wrap devices attached to assembly around combustible plastic pipe (closed and open piping systems) tested to 50 Pa. differential, the following products are acceptable:
 - .1 Firestop Collar
 - .2 Wrap Strips
- .20 Materials used for large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes; electrical busways in raceways, the following products are acceptable:
 - .1 Firestop Mortar
 - .2 Firestop Block
 - .3 Fire Foam
 - .4 Firestop Board
- .21 Non curing, re-penetrable materials used for large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes; electrical busways in raceways, the following products are acceptable:
 - .1 Firestop Block
 - .2 Firestop Board
- .22 Sealants or caulking materials used for openings between structurally separate sections of wall and floors, the following products are acceptable:
 - .1 Firestop Joint Spray

- .2 Firestop Silicone Sealant Gun Grade
 - .3 Flexible Firestop Sealant
 - .4 Self-leveling Firestop Sealant
- .23 For blank openings made in fire-rated wall or floor assemblies, where future penetration of pipes, conduits, or cables is expected, the following products are acceptable:
- .1 Firestop Block (for walls and floors)
 - .2 Firestop Plug (for walls and floors)
 - .3 Cast-In Place Firestop Device (for floors only)

2.2 ACCESSORIES

- .1 Primer: Type recommended by firestopping manufacturer for specific substrate surfaces.
- .2 Installation Accessories: Clips, collars, fasteners, stops or dams, and other devices required to position and retain materials in place; to manufacturer's recommendations and in accordance with tested assembly being installed.
- .3 Water (if applicable): potable, clean, and free from injurious amounts of deleterious substances.
- .4 Sealants for vertical joints: non-sagging.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify opening configurations, penetrating items, substrates, and other conditions affecting performance of firestopping are ready to receive the work of this section.
- .2 Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- .1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials. Ensure that substrates and surfaces are clean, dry, and frost free.
- .2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.
- .3 Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.
- .4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.3 INSTALLATION

- .1 Apply primer and materials to manufacturer's written instructions.

- .2 Install material at perimeter and openings in fire-rated assemblies, including but not limited to penetrating sleeves, piping, ductwork, conduit and other items requiring firestopping.
- .3 Install firestop materials in accordance with published ULC systems.
- .4 Apply firestopping material in sufficient thickness to achieve rating to uniform density and texture.
- .5 Place foamed materials in layers to ensure homogenous density, filling cavities and spaces. Place sealant to completely seal junctions with adjacent dissimilar materials.
- .6 Remove excess compound promptly as work progresses and upon completion.

3.4 IDENTIFICATION

- .1 Identify penetration firestopping with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 150 mm (6 inches) of firestopping edge so labels will be visible to anyone seeking to remove penetrating items or firestopping. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
 - .1 The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
 - .2 Contractor's name, address, and phone number.
 - .3 Designation of applicable testing and inspecting agency.
 - .4 Date of installation.
 - .5 Manufacturer's name.
 - .6 Installer's name.

3.5 INSPECTION

- .1 Notify Manufacturer's representative prior to concealing or enclosing firestopping materials and service penetration assemblies. Provide manufacturer's written Letter certifying firestopping application has been completed in compliance with the tested rated assembly requirements.

3.6 CLEANING

- .1 Remove excess materials and debris and clean adjacent surfaces immediately after application.
- .2 Remove temporary dams after initial set of fire stopping and smoke seal materials.

3.7 PROTECTION OF FINISHED WORK

- .1 Protect adjacent surfaces from damage by material installation.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 ASTM C919 - Use of Sealants in Acoustical Applications
- .2 ASTM D1056 – Standard Specification for Flexible Cellular Materials – Sponge or Expanded Rubber
- .3 CAN/CGSB 19.13 - Sealing Compound, One-component, Elastomeric, Chemical Curing
- .4 CAN/CGSB 19.17 - One-Component Acrylic Emulsion Base Sealing Compound
- .5 CAN/CGSB 19.22 - Mildew-Resistant Sealing Compound for Tubs and Tiles

1.2 SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, colour availability, installation data, VOC content (refer to Section 014711).
- .3 Samples: Submit two (2) samples, 6 x 150 mm in size illustrating sealant colours for selection.

1.3 QUALITY ASSURANCE

- .1 Perform work in accordance with manufacturer's requirements for preparation of surfaces and material installation instructions.

1.4 ENVIRONMENTAL REQUIREMENTS

- .1 Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.5 WARRANTY

- .1 Warranty: Include coverage for installed sealants and accessories which fail to achieve air tight seal, water tight seal, and exhibit loss of adhesion or cohesion, or do not cure.

Part 2 Products

2.1 SEALANTS

- .1 Acrylic Sealant (Type A): CAN/CGSB 19.17; paintable; single component, solvent curing, non-staining, non-bleeding, non-sagging. Colour as selected from manufacturer's full range.

- .2 Acoustic Sealant (Type B): ASTM C919; acoustic grade, single component, solvent release, non-skinning, non-sagging, synthetic rubber. Colour grey.
- .3 Polyurethane Sealant (Type C): CAN/CGSB-19.13; single component, chemical curing, non-staining, non-bleeding, elongation capability 25 percent, non-sagging; colours as selected by Departmental Representative. Acceptable products:

2.2 ACCESSORIES

- .1 Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- .2 Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- .3 Joint Backing: ASTM D1056; round, closed cell polyethylene foam rod; oversized 30 to 50 percent larger than joint width.
- .4 Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify that substrate surfaces and joint openings are clean, dry, and free of frost and ready to receive work.
- .2 Verify that joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

- .1 Remove loose materials and foreign matter which might impair adhesion of sealant.
- .2 Clean and prime joints in accordance with manufacturer's written instructions.
- .3 Perform preparation in accordance with manufacturer's written instructions.
- .4 Protect elements surrounding the work of this section from damage or disfiguration.

3.3 INSTALLATION

- .1 Install sealant to manufacturer's instructions.
- .2 Measure joint dimensions and size materials to achieve 2:1 width/depth ratios.
- .3 Install bond breaker where joint backing is not used.
- .4 Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- .5 Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

- .6 Tool joints concave.

3.4 CLEANING

- .1 Section 01 74 11: Cleaning installed work.
- .2 Clean adjacent soiled surfaces.

3.5 PROTECTION OF FINISHED WORK

- .1 Protect finished installation.
- .2 Protect sealants until cured.

3.6 SCHEDULE

- .1 Type "A":
 - .1 At junctures of finish carpentry items and adjacent building components
 - .2 Perimeter of frames, as directed
- .2 Type "B"
 - .1 Applied in two continuous beads around perimeter of plates, at top, bottom, and sides of all partitions
 - .2 Applied double bead around designated fire separations before setting top and bottom plates, where studs are set around other materials
- .3 Type "C":
 - .1 To masonry control joints

END OF SECTION